

ABSTRACT

5       The present invention stably provides a high-  
strength hot-dip galvanized steel sheet having a high  
tensile strength and no non-plated portions and being  
excellent in workability and surface properties even when  
the employed equipment has only a reduction annealing  
furnace and a steel sheet containing relatively large  
amounts of Si, Mn and Al that are regarded as likely to  
10       cause non-plated portions is used as the substrate. The  
present invention: secures good plating performance even  
when the steel sheet contains Si, Mn and Al by adding Ni  
to a steel sheet, thus forming oxides at some portions in  
the steel sheet surface layer, and resultantly  
15       suppressing the surface incrassation of Si, Mn and Al at  
the portions where oxides are not formed; enhances the  
effect of Ni and accelerates the formation of oxides by  
further adding Mo, Cu and Sn; and moreover, in the case  
of a TRIP steel sheet, secures austenite by determining  
20       the ranges of Si and Al strictly, avoiding the  
deterioration of plating performance caused by the  
addition of Ni, and further adding Mo in a balanced  
manner.

25       In addition, the present invention, in a TRIP steel  
sheet, improves press formability by regulating a  
retained austenite ratio and accelerates the formation of  
oxides by regulating a hydrogen concentration and a dew  
point in annealing before plating.